

REMARKS/ARGUMENTS

In the Office Action of August 4, 2010, claims 1-8 and 13-16 were rejected. However, Applicant hereby requests reconsideration of the application in view of the below-provided remarks.

Information Disclosure Statement (IDS)

An information disclosure statement (IDS) was filed on July 12, 2010. However, Applicant notes that the Examiner has not confirmed that the references cited in the IDS have been considered. Applicant herein requests the Examiner to properly confirm that the references cited in the IDS have been considered.

Claim Rejections under 35 U.S.C. 103

Claims 1, 8, 13 and 16 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Shen (U.S. Pat. Pub. No. 2004/0116087 A1) in view of Utsunomiya et al. (U.S. Pat. No. 7,327,406 B2, hereinafter “Utsunomiya”). Claim 2 was rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Shen in view of Utsunomiya and further in view of Durec (U.S. Pat. No. 6,144,846). Claims 3-7, 14 and 15 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Baltus (U.S. Pat. No. 6,282,413 B1) in view of Utsunomiya. However, Applicant respectfully submits that pending claims 1-8 and 13-16 are patentable over the cited references.

Independent Claim 1

Applicant respectfully asserts that a *prima facie* case of obviousness rejection have not been established with respect to claim 1. Specifically, Applicant respectfully asserts that Shen in view of Utsunomiya does not teach all of the limitations of claim 1. In addition, Applicant respectfully asserts that the Examiner has failed to provide *prima facie* support for the obviousness rejection with respect to claim 1.

Shen in view of Utsunomiya does not teach all of the limitations of claim 1

The Office Action recognizes that Shen does not teach the limitation “*a division factor of the frequency divider and a ratio between the center frequency and the first frequency are determined by the one of at least two frequency bands, wherein*

the ratio between the center frequency and a frequency of the first mixing signal is equal to $(N+1)/N$ or $(N-1)/N$, wherein N is the division factor” of claim 1. (See page 3 of the Office Action). However, the Office Action suggests that Utsunomiya teaches the above-identified limitation of claim 1. (See page 3 of the Office Action). The Office Action then concludes that “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have the above limitation in order to yield adequate signal to noise ratio for the signal component and also reduce cross talk.” (See page 3 of the Office Action).

However, Applicant respectfully asserts that Utsunomiya does not teach the limitation *“a division factor of the frequency divider and a ratio between the center frequency and the first frequency are determined by the one of at least two frequency bands, wherein the ratio between the center frequency and a frequency of the first mixing signal is equal to $(N+1)/N$ or $(N-1)/N$, wherein N is the division factor*” (emphasis added), as recited in claim 1.

Utsunomiya teaches examples of down conversions for an integrated circuit receiver. (See Fig. 5 and column 7, lines 22-45 of Utsunomiya). In addition, Utsunomiya teaches that a first spectrum of frequencies (510) illustrates a first down conversion for a first example channel and that in the first example, an RF signal has a center frequency of 800 Mhz, a local oscillator has a center frequency of 600 Mhz, and the RF and LO signals produce an image frequency centered around 400 Mhz. (See Fig. 5 and column 7, lines 22-45 of Utsunomiya). Furthermore, Utsunomiya teaches that a second spectrum of frequencies (520) illustrates a first down conversion for a second example channel and that in the second example, an input RF signal has a center frequency of 400 Mhz, a local oscillator has a center frequency of 300 Mhz, and the RF and LO signals produce an image frequency centered around 200 Mhz. (See Fig. 5 and column 7, lines 22-45 of Utsunomiya). Utsunomiya also teaches that notch filters (211) and (212) are tuned to attenuate the RF signal at the center frequency of the image frequency prior to mixing in a mixer (240) and that because of the signal attenuation in notch filters (211) and (212), the image component in the output from the mixer (240) is suppressed to yield an adequate signal to noise ratio for the signal components. (See Fig. 3 and column 7, lines 22-45 of Utsunomiya).

However, Utsunomiya is completely silent as to the *“frequency divider”* and the *“division factor of the frequency divider,”* as recited in claim 1. In addition, Utsunomiya does not describe any equation similar to the limitation *“ $(N+1)/N$ or $(N-$*

1)/N,” as recited in claim 1. As a result, Utsunomiya does not teach the limitation “*a division factor of the frequency divider and a ratio between the center frequency and the first frequency are determined by the one of at least two frequency bands, wherein the ratio between the center frequency and a frequency of the first mixing signal is equal to $(N+1)/N$ or $(N-1)/N$, wherein N is the division factor*” (emphasis added), as recited in claim 1.

If the Examiner disagrees with the Applicant’s analysis of Utsunomiya, Applicant respectfully requests the Examiner to specifically point out parts in column 7, lines 22-45, that teach the above claimed limitation. In particular, Applicant respectfully requests the Examiner to **specifically point out** which element of Utsunomiya is equivalent to the “*frequency divider*” of claim 1 and which element of Utsunomiya is equivalent to the “*oscillating means*” of claim 1.

Thus, Shen in view of Utsunomiya does not teach all of the limitations of claim 1. As a result, Applicant respectfully asserts that claim 1 is patentable over Shen in view of Utsunomiya.

The Examiner has failed to provide *prima facie* support for the obviousness rejection with respect to claim 1.

In addition, Applicant respectfully asserts that the Examiner has failed to provide *prima facie* support for the obviousness rejection with respect to claim 1.

As the MPEP makes clear, “[t]he key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Federal Circuit has stated that ‘rejections based on obviousness cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.’ *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).” MPEP §2142.

However, the only statement made by the Examiner in support of an obviousness rejection of claim 1 is that “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have the above limitation in order to yield adequate signal to noise ratio for the signal component and also reduce cross talk,” which is a mere conclusory statement and fails to clearly

articulate a rationale in support of the obviousness rejection, as required by the MPEP and *KSR*. In particular, the Examiner has failed to provide a logical explanation why the proposed combination would “yield adequate signal to noise ratio for the signal component and also reduce cross talk,” as alleged in the Office Action. In addition, the Examiner has failed to provide a logical explanation how the cited references of Shen and Utsunomiya can be combined to achieve the alleged results. The Examiner’s identification of the teachings of Shen and Utsunomiya, along with the conclusory statement of “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have the above limitation in order to yield adequate signal to noise ratio for the signal component and also reduce cross talk” without any rationale in support of that conclusion, does not satisfy the requirements for establishing a *prima facie* case of obviousness.

Assuming (because there is no explicit statement of the Examiner’s rationale in the Office Action) that the Examiner’s rationale is that there is some teaching, suggestion, or motivation that would have led one of ordinary skill to combine the cited references’ teachings to arrive at the claimed invention, MPEP §2143 (G) and the applicable case law require the following:

To reject a claim based on this rationale, Office personnel must resolve the *Graham* factual inquiries. Then, Office personnel must articulate the following:

- (1) a finding that there was some teaching, suggestion, or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
- (2) a finding that there was reasonable expectation of success; and
- (3) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

... If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art. (emphasis added).

If the Applicant’s assumption of the Examiner’s rationale as described above is correct, then Applicant is entitled to have the foregoing required items articulated. If the Examiner’s rejection is based on some other rationale, Applicant is entitled to know what that rationale is and to be given an opportunity to respond. If an explanation of the Examiner’s rationale is presented in the next Office Action, the next Office Action should **not** be made final. “The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.” MPEP §2142.

In view of the foregoing, Applicant respectfully submits that the Examiner has merely provided a conclusory statement in support of the obviousness rejection and failed to clearly articulate a rational to support his conclusion, as required by the MPEP and *KSR*. Because “rejections based on obviousness cannot be sustained by mere conclusory statements,” Applicant respectfully asserts that the Examiner has failed to provide *prima facie* support for the obviousness rejection with respect to claim 1.

Thus, Applicant respectfully asserts that Shen in view of Utsunomiya does not teach all of the limitations of claim 1. In addition, Applicant respectfully asserts that the Examiner has failed to provide *prima facie* support for the obviousness rejection with respect to claim 1. As a result, Applicant respectfully asserts that a *prima facie* case of obviousness rejection have not been established with respect to claim 1.

Dependent Claims 2 and 13

Claims 2 and 13 depend from and incorporate all of the limitations of independent claim 1. Thus, Applicant respectfully asserts that claims 2 and 13 are allowable at least based on an allowable claim 1.

Additionally, claim 13 recites in part that “*frequencies of the first mixing signal and the second mixing signal are not fixed and are variably dependent on the center frequency of the radio frequency signal*” (emphasis added). The Office Action suggests that Shen teaches the above-identified limitation of claim 13. (See page 3 of the Office Action). However, Applicant respectfully disagrees.

Shen teaches that an RF communication receiver includes a tracking image rejection filter (79), a first local oscillator (87), a mixer (81), a frequency divider (89) and a second mixer (85). (See Fig. 3 and paragraph [0019] of Shen). The Office Action on page 3 suggests that the frequency divider (89) is equivalent to the “*frequency divider*” of claim 1. The Office Action also suggests that paragraph [0019] of Shen discloses “intermediate frequency to be variable, center frequency is also variable with the local oscillator.” (See page 3 of the Office Action).

However, Shen on paragraph [0019] teaches that in order for the tracking image rejection filter (79) to effectively suppress image frequencies of a variable intermediate frequency, the center frequency of the tracking image rejection filter (79) should vary with the local oscillator (87). That is, paragraph [0019] of Shen merely teaches that the center frequency of the tracking image rejection filter (79) may vary

with the local oscillator (87). However, Shen does not teach that the output signals of the local oscillator (87) and the frequency divider (89) are variably dependent on the center frequency of the incoming radio frequency signal. Thus, Shen does not teach *“frequencies of the first mixing signal and the second mixing signal are not fixed and are variably dependent on the center frequency of the radio frequency signal”* (emphasis added), as recited in claim 13. Because Shen in view of Utsunomiya does not teach all of the limitations of claim 13, Applicant respectfully asserts that claim 13 is patentable over Shen in view of Utsunomiya.

Independent Claim 3

Claim 3 includes similar limitations to claim 1. Although the language of claim 3 differs from the language of claim 1 and the scope of claim 3 should be interpreted independently of claim 1, Applicant respectfully asserts that the remarks provided above in regard to claim 1 apply also to claim 3. Thus, Applicant respectfully asserts that a *prima facie* case of obviousness rejection have not been established with respect to claim 3.

Dependent Claim 14

Claim 14 depends from and incorporates all of the limitations of independent claim 3. Thus, Applicant respectfully asserts that claim 14 is allowable at least based on an allowable claim 3.

Additionally, claim 14 recites in part that *“frequencies of the first mixing signal and the second mixing signal are not fixed and are variably dependent on the center frequency of the radio frequency signal.”* The Office Action suggests that column 6, line 45-column 7, line 5 of Utsunomiya teaches the above-identified limitation of claim 14. (See page 7 of the Office Action). However, Applicant respectfully asserts that column 6, line 45-column 7, line 5 of Utsunomiya merely teaches first and second down conversions of a monolithic integrated circuit receiver and does not teach the above-identified limitation of claim 14. Thus, Applicant respectfully asserts that Utsunomiya does not teach the limitation of *“frequencies of the first mixing signal and the second mixing signal are not fixed and are variably dependent on the center frequency of the radio frequency signal,”* as recited in claim 14.

If the Examiner disagrees with the Applicant's analysis of Utsunomiya, Applicant respectfully requests the Examiner to **specifically point out** which signal of Utsunomiya is equivalent to the "*first mixing signal*" of claim 14 and which signal of Utsunomiya is equivalent to the "*second mixing signal*" of claim 14.

Independent Claim 4

Claim 4 includes similar limitations to claim 1. Although the language of claim 4 differs from the language of claim 1 and the scope of claim 4 should be interpreted independently of claim 1, Applicant respectfully asserts that the remarks provided above in regard to claim 1 apply also to claim 4. Thus, Applicant respectfully asserts that a *prima facie* case of obviousness rejection have not been established with respect to claim 4.

Dependent Claims 5-7 and 15

Claims 5-7 and 15 depend from and incorporate all of the limitations of independent claim 4. Thus, Applicant respectfully asserts that claims 5-7 and 15 are allowable at least based on an allowable claim 4. Additionally, claims 6 and 15 are allowable for further reasons, as described below.

Dependent Claim 6

Applicant notes that the Examiner relies on the same ground or motivation for rejecting claim 1 to reject claim 6. (See pages 6 and 7 of the Office Action). As described above with respect to claim 1, Applicant respectfully submits that the Examiner has merely provided a conclusory statement in support of the obviousness rejection and failed to clearly articulate a rational to support his conclusion for rejecting claim 6, as required by the MPEP and *KSR*. Because "rejections based on obviousness cannot be sustained by mere conclusory statements," Applicant respectfully asserts that the Examiner has failed to provide *prima facie* support for the obviousness rejection with respect to claim 6.

Dependent Claim 15

Claim 15 includes similar limitations to claim 14 and is rejected in the same way as claim 14. Because of the similarities between claim 14 and claim 15,

Applicant respectfully asserts that the remarks provided above with regard to claim 14 apply also to claim 15.

Independent Claim 8

Claim 8 includes similar limitations to claim 1. Although the language of claim 4 differs from the language of claim 1 and the scope of claim 8 should be interpreted independently of claim 1, Applicant respectfully asserts that the remarks provided above in regard to claim 1 apply also to claim 8. Thus, Applicant respectfully asserts that a *prima facie* case of obviousness rejection have not been established with respect to claim 8.

Dependent Claim 16

Claim 16 depends from and incorporates all of the limitations of independent claim 8. Thus, Applicant respectfully asserts that claim 16 is allowable at least based on an allowable claim 8. Additionally, claim 16 includes similar limitations to claim 13 and is rejected in the same way as claim 13. Because of the similarities between claim 13 and claim 16, Applicant respectfully asserts that the remarks provided above with regard to claim 13 apply also to claim 16.

Generally, in this Response, Applicant has not raised all possible grounds for (a) traversing the rejections of the Office Action or (b) patentably distinguishing any new or currently amended claims (i.e., over the cited references or otherwise). Applicant however, reserves the right to explicate and expand on any ground already raised and/or to raise other grounds for traversing and/or for distinguishing, including, without limitation, by explaining and/or distinguishing the subject matter of the Application and/or any cited reference at a later time (e.g., in the event that this Application does not proceed to issue with the current pending claims, or in the context of a continuing application). Applicant submits that nothing herein is, or should be deemed to be, a disclaimer of any rights, acquiescence in any rejection, or a waiver of any arguments that might have been raised but were not raised herein, or otherwise in the prosecution of this Application, whether as to the original claims or as to any of the new or amended claims, or otherwise. Without limiting the generality of the foregoing, Applicant reserves the right to reintroduce one or more of the original claims in original form or otherwise so as to claim the subject matter of those

claims, both/either at a later time in prosecuting this Application or in the context of a continuing application.

CONCLUSION

Applicant respectfully requests reconsideration of the claims in view of the remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted on behalf of:

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Date: September 28, 2010

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